

WHAT IS CLAIMED IS:

- 1           1. A catheter for delivering a contraceptive device within a fallopian  
2       tube, the catheter comprising:  
3                   an elongate tubular catheter body having a proximal portion adjacent a  
4       proximal end, a distal portion adjacent a distal end, and at least one lumen; and  
5                   at least one coil disposed along the catheter body nearer the distal end than  
6       the proximal end and encircling the lumen.
- 1           2. A catheter as in claim 1, wherein the distal portion of the catheter  
2       body is more flexible towards the distal end of the catheter body than towards the  
3       proximal end.
- 1           3. A catheter as in claim 2, wherein the distal portion of the catheter  
2       body comprises multiple layers, and the at least one coil comprises one of the layers.
- 1           4. A catheter as in claim 3, wherein the multiple layers comprise:  
2                   an inner layer;  
3                   a middle layer; and  
4                   an outer layer.
- 1           5. A catheter as in claim 4, wherein the middle layer comprises the  
2       coil.
- 1           6. A catheter as in claim 5, wherein the coil comprises at least one  
2       material selected from the group consisting of Nitinol®, stainless steel, titanium and a  
3       polymer.
- 1           7. A catheter as in claim 4, wherein the inner layer comprises at least  
2       one material selected from the group consisting of Teflon®, etched  
3       polytetraflouoroethylene and a fluoropolymer.
- 1           8. A catheter as in claim 4, wherein the outer layer comprises at least  
2       one polyurethane material.

1                   9.       A catheter as in claim 8, wherein the polyurethane material  
2   comprises Carbothane.

1                   10.      A catheter as in claim 2, wherein the distal portion comprises:  
2                   a first segment; and  
3                   at least a second segment distal to the first segment,  
4                   wherein the second segment is more flexible than the first segment.

1                   11.      A catheter as in claim 10, further comprising a third segment distal  
2   to the second segment, wherein the third segment is more flexible than the second segment.

1                   12.      A catheter as in claim 11, wherein the distal portion comprises:  
2                   an inner layer;  
3                   a middle layer; and  
4                   an outer layer.

1                   13.      A catheter as in claim 12, wherein the middle layer comprises the  
2   coil and the outer layer comprises at least one polyurethane material.

1                   14.      A catheter as in claim 13, wherein the at least one polyurethane  
2   material comprises at least two polyurethane materials for conferring varying levels of  
3   flexibility to the distal portion.

1                   15.      A catheter as in claim 13, wherein the at least one polyurethane  
2   material has an increasing amount of flexibility from a proximal end of the distal portion to  
3   a distal end of the distal portion.

1                   16.      A catheter as in claim 1, wherein a pitch of the at least one coil is  
2   approximately 0.030 cm.

1                   17.      A catheter as in claim 1, wherein the distal portion of the catheter  
2   body has a length of between about 1.2 cm and about 2.0 cm.

1                   18.      A catheter as in claim 17, wherein the at least one coil has a length  
2   of between about 1.6 cm and about 2.4 cm.

1                   19. A catheter as in claim 18, wherein the at least one coil extends  
2 through at least part of the distal portion of the catheter body and at least part of the  
3 proximal portion of the catheter body.

1                   20. A catheter as in claim 19, wherein a distal end of the proximal  
2 portion of the catheter body overlaps a proximal end of the distal portion of the catheter  
3 body.

1                   21. A catheter as in claim 18, wherein the length of the catheter body is  
2 between about 43 cm and about 50 cm.

1                   22. A catheter as in claim 1, wherein an inner diameter of the proximal  
2 portion of the catheter body is smaller near the distal end of the catheter body than near the  
3 proximal end.

1                   23. A catheter as in claim 1, wherein the proximal portion of the catheter  
2 body comprises at least one polyether block amide.

1                   24. A catheter as in claim 1, wherein the proximal portion of the catheter  
2 body includes at least one visualization marker near the distal portion for enhancing  
3 visualization of a proximal-most end of the distal portion.

1                   25. A catheter as in claim 24, wherein the visualization marker  
2 comprises at least one radiopaque material.

1                   26. A catheter for delivering a contraceptive device within a fallopian  
2 tube, the catheter comprising:

3                   an elongate tubular catheter body having a proximal portion adjacent a  
4 proximal end, a distal portion adjacent a distal end, and at least one lumen, wherein the  
5 distal portion is more flexible towards the distal end than towards the proximal end; and  
6                   at least one coil disposed along the catheter body nearer the distal end than  
7 the proximal end and encircling the lumen.

1                   27. A catheter for delivering a contraceptive device within a fallopian  
2 tube, the catheter comprising:

3                   an elongate tubular catheter body having a proximal portion adjacent a  
4 proximal end, a distal portion of between about 1.2 cm and about 2.0 cm adjacent a distal  
5 end, and at least one lumen, wherein the distal portion is more flexible towards the distal  
6 end than towards the proximal end; and

7                   at least one coil disposed along the catheter body nearer the distal end than  
8 the proximal end and encircling the lumen.

1                 28.    A system for delivering a contraceptive device within a fallopian  
2 tube, the system comprising:

3                   a catheter comprising:

4                   an elongate tubular catheter body having a proximal portion  
5 adjacent a proximal end, a distal portion adjacent a distal end, and at least one lumen; and  
6                   at least one coil disposed along the catheter body nearer the distal  
7 end than the proximal end and encircling the lumen;

8                   a contraceptive device releasably disposed at least partially within the  
9 lumen of the catheter near the distal portion; and

10                  a deployment member in detachable engagement with the contraceptive  
11 device for deploying the contraceptive device from the catheter.

1                 29.    A system as in claim 28, wherein the distal portion of the catheter  
2 body is more flexible towards the distal end of the catheter body than towards the  
3 proximal end.

1                 30.    A system as in claim 29, wherein the distal portion of the catheter  
2 body comprises multiple layers, and the at least one coil comprises one of the layers.

1                 31.    A system as in claim 30, wherein the multiple layers comprise:  
2                   an inner layer;  
3                   a middle layer; and  
4                   an outer layer.

1                 32.    A system as in claim 31, wherein the middle layer comprises the  
2 coil.

1                   33. A system as in claim 32, wherein the coil comprises at least one  
2 material selected from the group consisting of Nitinol®, stainless steel, titanium and a  
3 polymer.

1                   34. A system as in claim 31, wherein the inner layer comprises at least  
2 one material selected from the group consisting of Teflon®, etched polytetraflouoroethylene  
3 and a fluoropolymer.

1                   35. A system as in claim 31, wherein the outer layer comprises at least  
2 one polyurethane material.

1                   36. A system as in claim 35, wherein the polyurethane material  
2 comprises Carbothane.

1                   37. A system as in claim 29, wherein the distal portion comprises:  
2                   a first segment; and  
3                   at least a second segment distal to the first segment,  
4                   wherein the second segment is more flexible than the first segment.

1                   38. A system as in claim 37, further comprising a third segment distal to  
2 the second segment, wherein the third segment is more flexible than the second segment.

1                   39. A system as in claim 38, wherein the distal portion comprises:  
2                   an inner layer;  
3                   a middle layer; and  
4                   an outer layer.

1                   40. A system as in claim 39, wherein the middle layer comprises the coil  
2 and the outer layer comprises at least one polyurethane material.

1                   41. A system as in claim 40, wherein the at least one polyurethane  
2 material comprises at least two polyurethane materials for conferring varying levels of  
3 flexibility to the distal portion.

1                   42. A system as in claim 40, wherein the at least one polyurethane  
2 material has an increasing amount of flexibility from a proximal end of the distal portion  
3 to the distal end of the distal portion.

1                  43. A system as in claim 28, wherein the proximal portion of the catheter  
2 body includes at least one visualization marker near the distal portion for enhancing  
3 visualization of a proximal-most end of the distal portion.

1                  44. A system as in claim 43, wherein the visualization marker comprises  
2 at least one radiopaque material.

1                  45. A method for making a catheter for delivery of a contraceptive  
2 device within a fallopian tube, the method comprising:  
3                  forming a distal portion of the catheter, comprising:  
4                  positioning a helical coil around an inner tubular member; and  
5                  placing at least one outer layer of material over the helical coil and  
6 the inner tubular member; and  
7                  coupling a proximal portion of the catheter with the distal portion of the  
8 catheter.

1                  46. A method as in claim 45, wherein the inner tubular member  
2 comprises a metal selected from the group consisting of Teflon®, etched  
3 polytetrafluoroethylene and a fluoropolymer.

1                  47. A method as in claim 45, wherein the helical coil comprises a metal  
2 selected from the group consisting of Nitinol®, stainless steel, titanium and a polymer.

1                  48. A method as in claim 45, wherein the outer material comprises at  
2 least one polyurethane material.

1                  49. A method as in claim 45, wherein coupling comprises overlapping a  
2 distal end of the proximal portion of the catheter with a proximal end of the distal portion  
3 of the catheter.

1                  50. A method as in claim 49, wherein coupling further comprises heat  
2 welding the proximal portion to the distal portion.

1                  51. A method as in claim 45, further comprising coupling a first segment  
2 of the outer material with at least a second segment of the outer material.

1                   52. A method as in claim 51, further comprising coupling a third  
2 segment of the outer material with the second segment.

1                   53. A method as in claim 53, wherein the first segment of the outer  
2 material has greater flexibility than the second segment, the second segment has greater  
3 flexibility than the third segment, and the third segment is coupled with the proximal  
4 portion of the catheter.

1                   54. A method as in claim 46, wherein the distal portion of the catheter is  
2 between about 1.2 cm and about 2.0 cm, the coil is between about 1.6 cm and about 2.4 cm,  
3 and the catheter is between about 43 cm and about 50 cm in length.